Outer Space

Have you ever wished on a star high in the sky? Looking up into the night sky may bring lots of questions to mind. As you work through this emblem, you will learn about some of those shining objects in the night sky. Name the planets, make a constellation, and allow your creative spark to flow.

To earn the Outer Space emblem, you must complete FOUR tasks.

Task 1: Planets

A large object that orbits in a galaxy around a star is called a planet. In our Milky Way galaxy, we have eight planets and one dwarf planet. Label and color the planets below.

THE PLANETS AND MOONS OF Our Solar System
A star is an object in space that generates its own light. Our sun is a medium-sized star. In our night sky, you can look up, and see many stars shining through the dark. Fill in the chart below about the sun, the star closest to Earth.

<table>
<thead>
<tr>
<th>What I Know About The Sun</th>
<th>What I Want To Know About The Sun</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Now watch a documentary about the sun. Learn the facts about the source of our solar system’s light and heat.

<table>
<thead>
<tr>
<th>What I Learned About The Sun</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>
TASK 3: CONSTELLATIONS

Constellations are groups of stars that make a recognizable pattern. They appear in the night sky close together. If you use your imagination, you can connect the dots of light to make a picture. There are many constellations. Review the constellations below with your troop. Then, make your own constellation light projector to take home.

MATERIALS

- Flashlight
- Black construction paper
- Scissors
- Pencil with a very sharp point
- Rubber band

INSTRUCTIONS

1. Cut a square of black paper to fit over the light of your flashlight.

2. Choose a constellation to create with your flashlight.

3. Use your pencil to draw dots to copy the constellation. Make sure the whole image fits on the circle of light from your flashlight.

4. Use the sharp tip of your pencil and lightly poke a hole where each star is placed.

5. Fold the edges of your constellation picture over your flashlight.

6. Use the rubber band to hold the paper in place.

7. Go to a dark room and turn your flashlight on. The light will shine through your star holes and project your constellation on the wall or ceiling.
**TASK 4: TRIP**

Visit a local museum with a solar system display, a planetarium, or an astronomy observation lab.

**THREE THINGS I LEARNED ABOUT OUTER SPACE ON OUR TRIP:**

1. _____________________________________________________________________
2. _____________________________________________________________________
3. _____________________________________________________________________

**TASK 5: CREATIVE SIDE**

Throughout history, writers have looked to the mysteries of the sky for inspiration. Think about the stars, the planets, and all the unknown things above. Write a poem or a song about our universe or any part within our solar system. Share it with your troop and your leader.

**TASK 6: A STARRY NIGHT**

If you walk through an art exhibit you may see several works of art inspired by the solar system. A famous artist named Vincent van Gogh painted a picture titled The Starry Night. It was painted in 1889. It shows a nighttime sky filled with stars and the moon. Look at this painting and then use charcoals, chalks, or paint to create your own version of The Starry Night.
TASK 7: GAMES

Learning about outer space is fun! Use what you have learned, and get up and get moving! Play at least two of the games below with your troop.

STAR CATCHERS

Mark two lines about 25–30 feet apart. Two or three volunteers will be the star catchers. All the other boys will be the stars. The stars line up on either line. The star catchers position themselves in the middle area. One of the star catchers calls out “Star light, star bright! How many stars are out tonight?” All of the stars must start running back and forth from line to line. If a star catcher tags them, they are out. Last star tagged is the winner.

ASTEROID TOSS

You will need a bag of multi-colored balloons. Blow up the balloons. Tie them closed. Everyone grab a few balloon asteroids. When your leader says go, start tossing the balloons into the air. Everyone work to keep all the balloons up in the air. Don’t let them fall! When the leader yells, “Atmosphere,” grab one balloon asteroid. Before the leader turns around, he will say a color. If you are holding that color asteroid, you are out. Play continues until only one person is left.

SATURN RELAY

You will need three hula-hoops and three beach balls for this game. Break up into three groups. Put the hula-hoop at the starting line. Put the beach balls at the finish line at the other end. Boys line up in their teams. The first boy picks up the hula-hoop, begins spinning and moving towards the beach ball. Once he gets close enough to throw the hoop to ring Saturn, he may stop and toss the hoop on the ball. If he makes it, he can run up, remove the hoop and go back to his team. He will pass the hoop to the next person in line and then sit down. Play continues until one team has everyone finished and seated. The group that sits first is the winning team.

FROZEN PLANETS

The leader (the sun) stands at one end of the room. The other players (the planets) line up across at the other end of the room. The leader calls out “Time to orbit,” and turns around to face away from the planets. All of the planets begin spinning and moving towards the sun. The sun decides when it has been long enough and shouts out “Frozen Planets.” Everyone must freeze in place. The sun turns around and, if he sees you moving, he will call you out and you have to move back to the beginning line. The game is over when everyone makes it across the room to the sun without being seen moving.
PSALM 27:1 NIV

“The LORD is my light and my salvation — whom shall I fear?
The LORD is the stronghold of my life — of whom shall I be afraid?”

ON TARGET!

The next time you feel the warmth of the SUN, stop, and take a minute to thank God for the warmth of His SON.

EMBLEM COMPLETION

Leader’s or Resource Person’s Signature

________________________________

Date Completed
To complete the Reach for the Stars project, finish one of the choices below.

Go outside and identify three constellations in your night sky. You can print out a star map for your area or with adult permission find an app for your phone or tablet that can help you pinpoint just what is in your night sky.

– OR –

Choose one of the planets and prepare a project that teaches a fact about that planet. You may learn what the planet looks like and make a painting showing it. You could learn about the atmosphere and moons, and bake small cakes showing how many moons orbit the planet. You may want to write a story about what it would be like if there was life on your planet. Use your imagination and get creative sharing the facts you learn about your planet.
To complete the Outer Space emblem, Explorers must complete **FOUR** tasks.

**TASK 1: PLANETS**

The planets in our solar system follow an elliptical pattern, which means that they do not travel in a circle. Discuss with the boys all of the planet names. Have them label and color them in the Explorer Handbook.
 TASK 2: SUN

The star in our sky is very important to our existence here on Earth. God planned everything out to work together in perfect harmony. Allow your boys to discuss what they know about the sun. Then ask them what they want to learn about it. Rent a documentary on the sun or download one from online.

FACTS ABOUT THE SUN

- It takes about eight minutes for light to reach us on Earth from the sun.
- The sun makes up around 99% of the Solar System’s mass.
- The temperature on the sun’s surface is around 5500 C or 9941 F.
- A solar eclipse happens when the moon is between the sun and the Earth.
- The sun is mostly made up of hydrogen. It also contains helium, oxygen, carbon, iron, and neon.
- The sun is one of millions and millions of stars in the galaxy.
- The sun is almost 93 million miles away from the Earth.

VIDEOS AVAILABLE TO RENT OR BUY

*The Sun and Its Place in Our Galaxy* by Neo/Sci Corporation
*One Night in the Cosmos: Around the Sun*
*NOVA: Secrets of the Sun* by PBS (also available to watch online)
*The Sun Space Documentary* by National Geographic 2014 HD (also available online)

ONLINE RESOURCES

[https://www.youtube.com/watch?v=TSLZIgDDo4c](https://www.youtube.com/watch?v=TSLZIgDDo4c)
**TASK 3: CONSTELLATIONS**

Make your own constellation projector.

**MATERIALS**

- Flashlight
- Black construction paper
- Scissors
- Pencil with sharp point
- Rubber band

**INSTRUCTIONS**

1. Cut a square of black paper to fit over the light of your flashlight.
2. Choose a constellation to create with your flashlight.
3. Use your pencil to draw dots to copy the constellation. Make sure the whole image fits on the circle of light from your flashlight.
4. Use the sharp tip of your pencil and lightly poke a hole where each star is placed.
5. Fold the edges of your constellation picture over your flashlight.
6. Use the rubber band to hold the paper in place.
7. Go to a dark room and turn your flashlight on. The light will shine through your star holes and project your constellation on the wall or ceiling.

**ONLINE RESOURCES**

https://www.youtube.com/watch?v=1sZ15SUeS9w
http://www.dustbunny.com/afk/constellations/

Constellation game: http://www.kidsastronomy.com/astroskymap/constellation_hunt.htm
**TASK 4: TRIP**

If your troop completes this task you will take a trip to a place near you that teaches about the stars or outer space. Check for planetariums, observation labs, or museums with displays about outer space. Some high schools have planetariums.

In some areas, you may be able to invite a traveling planetarium to visit your corps. This is an option, but costs will vary depending on area.

**TASK 5: CREATIVE SIDE**

Provide pens, pencils, and paper to the boys to finish their poems or songs. If they are having trouble getting started, give them the idea of writing a poem using the beginning letters of something you find in the solar system.

**EXAMPLE**

Sharing light with me each day
Under its rays, I feel warmth and joy
Never will I be in darkness.

Every day I play on you
Any time I fall you are there to catch me
Round, you hang in the sky
Turning around and around the sun
Home to all of us.

**TASK 6: A STARRY NIGHT**

Provide art material such as charcoals, oil pastels, paints, watercolors, or other medium, and paper or canvas. If possible, have a copy of the painting The Starry Night in color for the boys to see.

**ONLINE RESOURCES**

https://en.wikipedia.org/wiki/The_Starry_Night
http://www.kinderart.com/painting/vangogh.shtml
**TASK 7: GAMES**

Enjoy two games with the boys that are themed about outer space. If you can’t do the ones in the Explorer Handbook, make up your own.

**STAR CATCHERS**

*Materials Needed: Open space*

Mark two lines about 25–30 feet apart. Two or three volunteers will be the star catchers. All the other boys will be the stars. The stars line up on either line. The star catchers position themselves in the middle area. One of the star catchers calls out “Star light, star bright! How many stars are out tonight?” All of the stars must start running back and forth from line to line. If a star catcher tags them, they are out. Last star tagged is the winner.

**ASTEROID TOSS**

*Materials Needed: Balloons of different colors at least two to three for each boy*

You will need a bag of multi-colored balloons. Blow up the balloons. Tie them closed. Everyone grab a few balloon asteroids. When your leader says go, start tossing the balloons into the air. Everyone work to keep all the balloons up in the air. Don’t let them fall. When the leader yells, “Atmosphere,” grab one balloon asteroid. Before the leader turns around, he will say a color. If you are holding that color asteroid then you are out. Play continues until only one person is left.

**SATURN RELAY**

*Materials Needed: Three hula-hoops, three beach balls or basketballs, open area*

You will need three hula-hoops and three beach balls for this game. Break up into three groups. Put the hula-hoop at the starting line. Put the beach balls at the finish line at the other end. Boys line up in their teams. The first boy picks up the hula-hoop, begins spinning and moving towards the beach ball. Once he gets close enough to throw the hoop to ring Saturn, he may stop and toss the hoop on the ball. If he makes it, he can run up, remove the hoop and go back to his team. He will pass the hoop to the next person in line and then sit down. Play continues until one team has everyone finished and seated. The group that sits first is the winning team.

**FROZEN PLANETS**

*Materials Needed: Open space*

The leader (the sun) stands at one end of the room. The other players (the planets) line up across at the other end of the room. The leader calls out “Time to Orbit,” and turns around to face away from the planets. All of the planets begin spinning and moving towards the sun. The sun decides when it has been long enough and shouts out “Frozen Planets.” Everyone must freeze...
in place. The sun turns around and, if he sees you moving, he will call you out and you have to move back to the beginning line. The game is over when everyone makes it across the room to the sun without being seen moving.
PSALM 27:1 NIV

“The LORD is my light and my salvation — whom shall I fear? The LORD is the stronghold of my life — of whom shall I be afraid?”

SUPPLIES: A paper print out that says SUN and one that says SON

INTRODUCTION: We have been studying outer space, and I want you to tell me what the sun does for each one of us. (Hold up the paper that says SUN.) Who can tell me something the sun in the sky does for us? (Give time for responses.) Good job! The sun keeps us warm, gives us light, provides vitamin D to our bodies, and gives plants what they need to use for energy. Can you imagine if God would not have given us the sun? The way that God put everything in the sky works out just perfectly for us to live a healthy, happy life on our planet Earth. God doesn’t make mistakes! This same thing is true not only about the sun in the sky but also about the SON that God sent to save us! (Hold up the paper that says SON.)

SCRIPTURE: The Bible says in John 3:17, “For God did not send his Son into the world to condemn the world, but to save the world through him.” You see, just like the sun in the sky, God’s SON provides what we need. Psalm 27:1 says, “The LORD is my light and my salvation — whom shall I fear? The LORD is the stronghold of my life—of whom shall I be afraid?” Jesus is our light! He gives us light, warmth, and salvation!

ON TARGET!

So, the next time you feel the warmth of the SUN, stop, and take a minute to thank God for the warmth of His SON.

PRAYER

Dear Jesus, You are our light and our salvation. Thank you for giving Your life on the cross and for choosing me even when I’m not having the best day. Bless us now. Keep us safe. We pray in Your name, amen.